

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11) EP 1 138 406 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 21.05.2003 Bulletin 2003/21

(51) Int Cl.7: **B21D 24/14**

(43) Date of publication A2: 04.10.2001 Bulletin 2001/40

(21) Application number: 01500085.4

(22) Date of filing: 29.03.2001

(84) Designated Contracting States:

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU

MC NL PT SE TR

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 30.03.2000 ES 200000793

(71) Applicant: FAGOR, S.Coop 20500 Mondragon (Guipuzcoa) (ES) (72) Inventors:

- Grande, Victoriano Esteban
 20500 Mondragon (Gipuzkoa) (ES)
- Domaica Lopez de Armentia, Ramon 20500 Mondragon (Gipuzkoa) (ES)
- Ormaetxea Abad, Aitor
 20500 Mondragon (Gipuzkoa) (ES)

(54) A press with a hydraulic cushion and a system for controlling the force and pad position thereof

(57) A press with a hydraulic cushion with a system for controlling the force and pad position thereof, said cushion (2) having at least one hydraulic cylinder (3) with an upper chamber (4) and a lower chamber (5) and said control system comprising a control unit (6) and metering and control elements (7, 8, 9, 10, 11). Both the

pad position and force of the cushion (2) are controlled by acting on each cylinder (3), using for this purpose a single control element (7) per cylinder (3), governed by the control unit (6), which regulates the oil input and output of the lower chamber (5) of each cylinder (3), the upper chamber (4) being connected to a pressure generator set (12).

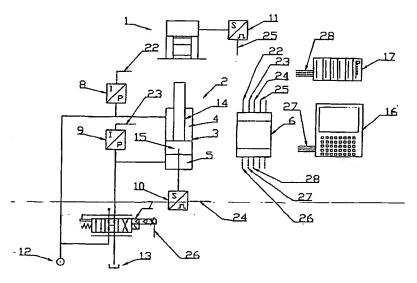


Fig. 2



EUROPEAN SEARCH REPORT

Application Number EP 01 50 0085

Category	Citation of document with in of relevant passage	dication, where appropriate,	Relevant to claim	CLASSIFICATI APPLICATION	ON OF THE (Int.CL7)
x	PATENT ABSTRACTS OF vol. 013, no. 076 (21 February 1989 (1 -& JP 63 273524 A (HEAVY IND CO LTD), 10 November 1988 (1 * abstract; figure	JAPAN M-800), 989-02-21) ISHIKAWAJIMA HARIMA 988-11-10)	1,2	B21D24/14	}
x	H. WARNKE) 5 May 1	KOMBINAT UMFORMTECHNIK 983 (1983-05-05)			
A	* figure 1 *		2		
A	EP 0 417 754 A.(MUE MASCHINENFABRIK AG) 20 March 1991 (1991 * figure 1 *		1,2		
A	EP 0 173 755 A (L. 12 March 1986 (1986 * figure 6 *	SCHULER GMBH)	1,2		
	1194.00			TECHNICAL I SEARCHED	FIELDS (Int.Cl.7)
				B21D	
					٠٠.
_					
·					
	The present search report has b	peen drawn up tor all claims			
	Place of search	Date of completion of the search	·	Examiner	
	MUNICH	27 March 2003	Vir	ci, V	
X:part Y:part	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with another of the same category innological background.	L : document cited for	ument, but public to the application or other reasons	nvention thed on, or	

BEST AVAILABLE COPY

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 01 50 0085

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

27-03-2003

	Patent documented in search re		Publication date		Patent fam member(s		Publication date
JP	63273524	Α	10-11-1988	NONE	· <u> </u>		
DE	3230673	A	05-05-1983	DD DE FR JP	208094 3230673 2514691 58070998	A1 A1	28-03-198 05-05-198 22-04-198 27-04-198
EP	0417754	A	20-03-1991	DE DE EP ES	4028919 59002628 0417754 2045702	D1 A2	14-03-199 14-10-199 20-03-199 16-01-199
EP	0173755	A	12-03-1986	EP BR DE US	0173755 8503119 3476524 4601190	A D1	12-03-198 18-03-198 09-03-198 22-07-198
				, .			
			Official Journal of the E				
more d	details about this	annex : see	Official Journal of the E	uropean Pal	lent Office, No. 12	2/82	

THIS PAGE BLANK (USPTO)